

IN THE CLAIMS:

Please amend the claims as follows:

1-19. (Canceled)

20. (Currently amended) An apparatus, comprising an expanded base carbon containing tip including:

a carbon containing expanded base coupled to a substrate; and

a carbon containing extension coupled to said carbon containing expanded base,

wherein said carbon containing expanded base is substantially cylindrically symmetrical and said carbon containing extension is substantially cylindrically symmetrical.

21. (Canceled)

22. (Currently amended) The apparatus of claim 24 20, wherein said carbon containing expanded base is substantially conical.

23. (Previously presented) The apparatus of claim 22, wherein said carbon containing expanded base defines a substantially solid cone.

24. (Original) The apparatus of claim 22, wherein said carbon containing expanded base defines a substantially hollow funnel.

25. (Currently amended) The apparatus of claim 24 20, wherein said carbon containing extension is substantially cylindrical.

26. (Original) The apparatus of claim 25, wherein said carbon containing extension defines a substantially solid rod.

27. (Original) The apparatus of claim 25, wherein said carbon containing extension defines a substantially hollow tube.

28. (Previously presented) The apparatus of claim 20, further comprising another expanded base carbon containing tip coupled to the substrate, the another expanded base carbon containing tip including another carbon containing expanded base coupled to said substrate; and another carbon containing extension coupled to the another carbon containing expanded base.

29. (Original) An electron emitter, comprising the apparatus of claim 20.

30. (Previously presented) The apparatus of claim 20, wherein the carbon containing expanded base includes a graphitic carbon film.

31. (Previously presented) The apparatus of claim 30, wherein the carbon containing expanded base includes a precipitated carbon film.

32-37. (Canceled)

38. (Currently amended) An apparatus, comprising:
a substrate; and
a sharp tip carbon nanostructure coupled to the substrate,
wherein the sharp tip carbon nanostructure defines a tip diameter that is a function of a size of a catalyst droplet,

wherein the sharp tip carbon nanostructure includes a carbon containing expanded base coupled to the substrate and a carbon containing extension coupled to the carbon containing expanded base, and

wherein the carbon containing expanded base is substantially cylindrically symmetrical and said carbon containing extension is substantially cylindrically symmetrical.

39. (Previously presented) The apparatus of claim 38, wherein the carbon nanostructure defines a height that is grown to a micron size.

40. (Previously presented) The apparatus of claim 38, wherein the carbon nanostructure defines a base diameter that is grown to a micron size.

41. (Previously presented) An electron emitter, comprising the apparatus of claim 38.

42-44. (Canceled)

45. (Currently amended) An apparatus, comprising:
a substrate; and
a carbon nanostructure coupled to the substrate,
wherein the carbon nanostructure defines a carbon containing expanded base,
wherein there is a mechanically strong connection between the carbon containing
expanded base and the substrate,
wherein the carbon nanostructure includes a carbon containing extension coupled to the
carbon containing expanded base, and
wherein said carbon containing expanded base is substantially cylindrically symmetrical
and said carbon containing extension is substantially cylindrically symmetrical.

46. (Previously presented) The apparatus of claim 45, wherein the carbon nanostructure includes a carbon nanocone that is characterized by mechanical stability.

47. (Previously presented) An electron emitter, comprising the apparatus of claim 45.